

CLAIMS

- 1 1. An information handling system, comprising:
2 an indirection table comprising a plurality of entries for encoding register
3 patterns, each register pattern identifying a register tuple;
4 instructions for loading and storing entries in the indirection table;
5 a mechanism for identifying instructions that use the indirection table; and
6 a mechanism for identifying a set of bits in instructions that are used to index
7 into the indirection table.
- 1 2. The system of claim 1, further comprising a plurality of registers identified by
2 a register pattern.
- 1 3. The system of claim 1, comprising a compatibility mode and an extended
2 mode, wherein in the compatibility mode for each instruction the system
3 interprets its register access fields directly and in the extended mode the
4 system interprets the register access fields via the indirection table.
- 1 4. The system of claim 1, comprising a process for merging a number of registers
2 into an expanded instruction that is used for remaining stages of instruction
3 processing.

1 5. A method for processing an instruction, the method comprising.
2 reading an index field in the instruction, wherein the index field comprises an
3 index to an entry in an indirection table;
4 identifying an entry in the indirection table corresponding to the index,
5 wherein the entry comprises a plurality of register specifiers; and
6 creating an extended instruction comprising the plurality of register specifiers
7 for processing of the instruction.

1 6. The method of claim 5 further comprising the steps of:
2 determining whether to process the instruction is to be processed in an
3 extended mode;
4 extracting the index field of the instruction when the instruction is to be
5 processed in extended mode; and
6 merging an appropriate number of extended register specifiers with remaining
7 components of the fetched instruction.

1 7. A method of encoding registers in a computer instruction, said method
2 comprising:
3 constructing a table, the table having a plurality of entries and each
4 entry specifying a combination of a plurality of registers;
5 generating an instruction referencing one of the entries
6 in the table; and
7 managing the table by generating instructions to load table entries from
8 memory and to store table entries to memory.
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1 8. The method of claim 7 wherein the step of constructing a table comprises
2 constructing a table comprising a plurality of register specifiers and 2^B entries where B
3 is the number of bits in the index field.

1 9. The method of claim 7 further comprising interpreting the register address
2 fields directly when operating in a compatibility mode.

1 10. A computer program product comprising instructions for:
2 reading an index field in an instruction, wherein the index field comprises an
3 index to an entry in an indirection table;
4 identifying an entry in the indirection table corresponding to the index,
5 wherein the entry comprises a plurality of register specifiers; and
6 creating an extended instruction comprising the plurality of register specifiers
7 for processing of the instruction.

1 11. The program product of claim 10 further comprising the instructions of:
2 determining whether to process the instruction is to be processed in an
3 extended mode;
4 extracting the index field of the instruction when the instruction is to be
5 processed in extended mode; and
6 merging an appropriate number of extended register specifiers with remaining
7 components of the fetched instruction..

1 12. The program product of claim 10 further comprising an instruction for merging
2 an appropriate number of extended register specifiers with remaining components of
3 the fetched instruction.

1 13. A program product for encoding registers in a computer instruction, said
2 program product comprising instructions for:
3 constructing a table, the table having a plurality of entries and each
4 entry specifying a combination of a plurality of registers;
5 generating an instruction having a reference to one of the entries
6 in the table;
7 managing the table by generating instructions to load table entries from
8 memory and to store table entries to memory.

1 14. The program product of claim 13 wherein the instruction for constructing a
2 table comprises constructing a table comprising a plurality of register specifiers and 2^B
3 entries where B is the number of bits in the index field.

1 15. The program product of claim 13 further comprising an instruction for
2 interpreting the register address fields directly when operating in a compatibility
3 mode.